The role and value of medicines management work packages 1 & 2

The Role and Value of Medicines Management

Part 1: SharePoint Data Evaluation

&

Part 2: Clinical Pharmacists in Patient Facing Roles

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Work Package 1: SharePoint Data Evaluation

This report presents the findings and recommendations from the analysis of Southern Derbyshire's Medicine Management "Work Log" SharePoint data set. The report provides an overview of the work done by the Medicine Management team. The current form and function of the SharePoint data set are also discussed. The analysis of the dataset (*Annex Document*) provide context for the recommendations presented, which are based on six case studies selected by Southern Derbyshire Medicines Management team. Wherever possible reference has been made to primary research, medicine safety messages and regional and national guidelines.

The following is an executive summary of the key findings from the analysis of the data set, the detailed overview provides further context (*WP 1: Detailed Overview, page 6*) while the full analysis of each of the items is contained in the separate accompanying annex document.

WP 1: Executive Summary

SharePoint is a platform used by Southern Derbyshire Medicine Management team as a way of capturing activity and data, storing information and sharing resources. The Medicine Management team currently document their activity under four key headings:

1. Systems & Process Intervention
2. Influencing Intervention
3. Single Patient Quality Intervention
4. Multiple Intervention & Switches

Medicine Management is a core initiative in improving the region's health and reduce acute non-elective episodes and length of stay due to adverse drug events (STP, 2016). However, evidence for the efficacy of Medicines Management inventions within the published literature are severely lacking.

The challenge is compounded by the large range of different interventions made, which often do not have data on the likelihood or severity of adverse events or potential costs to primary and secondary care.

Consequently, the aim of *Work Package One* was to explore the efficacy of current risk modelling and management practices in the Medicines Management team, evidenced by secondary analysis of SharePoint data and current academic literature.

Key findings

The SharePoint data set is comprised of 11,507 records documenting 38,843 interventions, recorded between Februarys 2015 - 2017.

The quality of the data contained within the dataset varied considerably. While free text descriptions are frequently completed to a high level of detail, information such as risk stratification and time savings were frequently omitted.

Six case studies were examined, selected by Southern Derbyshire Medicines Management team to represent the breadth of the work done by the team. The case studies explore entries relating to Clozapine; Adrenaline; Azithromycin; Clostridium Difficile; Buprenorphine; ACE/ ARB and Spironolactone.

Evidence for the efficacy of each specific intervention were not typically available in literature. Interventions were largely based on single incidents, which brought about the need for an intervention.

Each of the interventions resulted in a considerable reduction in stratified patients risk score (National Patient Saftey Agency, 2008), decreasing by between 2 and 19 points.

Given that the General Practitioner time costs over twice that of the pharmacists, the pharmacist is cheaper while also likely to be able to perform the task at least as quick (General Practitioner @£80 per hour). Total net savings of the six interventions were approximately £10,896.90.

A further £37,134 (up to) may have resulted from Buprenorphine patch switches, however from the SharePoint records it is unclear whether a switch was made in all cases.

Given the predicted risk reduction from extreme (>15 points) to high risk (8 to 12 points) in many cases it is also likely that there will be avoided hospital admissions (Emblin, Nash, & Jefferies, 2016). Accurate predictions of cost saving of admission avoidance could not be made, but even a single avoided admission and short hospital stay would eclipse the cost of performing the interventions.

The current method of risk stratification, using the NHS's National Patient Safety Agency (National Patient Saftey Agency, 2008) is considered the most appropriate tool for risk stratification in Medicines Management. However, issues were identified with its inconsistent use, in particular the large number of records that do not have a risk score attributed to them.

Recommendations

1. The Medicines Management team should simplify the recording of interventions on SharePoint based on Medicines Safety Messages.
2. The Medicines Management team should have a simpler single sheet for the recording of single and multiple interventions.
3. The Medicines Management team should clarify information required when recording influence interventions.
4. The Medicines Management team should simplify the number of data items recorded in the SharePoint dataset.

Conclusion

The current method of risk stratification, using the NHS's National Patient Safety Agency risk matrix (National Patient Saftey Agency, 2008) is considered the most appropriate tool for risk stratification in Medicines Management. However, it has been used inconsistently, it is recommended scores are determined centrally prior to the issue of internal medicines safety messages.

In primary care, the greatest cost saving are likely to be derived from a member of the medicines management team performing medicines management intervention, over the General Practitioner performing a similar role. Cost savings have only been estimated for primary care, it is highly likely that there will also be knock-on cost savings in secondary care, however, the lack of available data makes calculation impossible.

The quality of the SharePoint records varies considerably. While the free-text notes are generally excellent, records of risk stratification and cost saving are inconsistent. It is recommended that the SharePoint dataset is simplified, risk stratification and costs are pre-calculated and the number of data points reduced.

WP 1: Detailed Overview

The following section provides a more detailed look at the work undertaken for Work Package 1. Reference is made to the detailed data analysis presented in the accompanying Annex document.

SharePoint

SharePoint is a platform used by the Medicine Management team as a way of capturing activity and data, storing information and sharing resources. The latest, May 2016, version of Southern Derbyshire's SharePoint data site upgraded the existing platform, which already existed to capture cost saving and quality activity undertaken by the Medicines management team. The changes to SharePoint were instigated in order to demonstrate more of what the Medicine Management team undertake in practices, and hence give more detailed prisms of what activity looks like in practice. The Medicine Management team document their activity under four key headings:

1. Systems & Process Intervention
2. Influencing Intervention
3. Single Patient Quality Intervention
4. Multiple Intervention & Switches

The team record interventions rather than activity on its own. For the purpose of SharePoint Intervention is defined as *"Input provided to change the course of action/improve a situation"*. It should lead directly to a patient-related outcome.

Context and Aim

Over 1.1 billion items are dispensed in the community each year (NHS, 2017). The prescription of drugs is the most common form of patient treatment, errors that occur in the prescribing process have the potential to cause significant morbidity and mortality (Avery et al., 2012). In primary care, reported prescribing error rates vary from less than 1% (Maxwell, Walley, & Ferner, 2002) to over 40% (Claesson, Burman, Nilsson, & Vinge, 1995), the later being a study conducted in Sweden, where failure to report the indication for a drug was considered an error. Consequently, it is unsurprising that adverse medication-related events occur (Keers, Williams, Cooke, & Ashcroft, 2013; Purdy, 2010).

Events involving medicines were the third largest group that resulted in a patient safety incidents in 2015 - 2016, accounting for 10.9% of all instances reported by community trusts, after patient accidents and the implementation of care (NRLS, 2016). Of all patient safety incidents reported 75.5% resulted in no harm, 21.6% low, 2.5% moderate, 0.3% severe and 0.3% death. Unfortunately, it is not possible to determine from the National Reporting and Learning System data the degree of harm arising from each incident category.

A study by Avery et al. (2012) investigated the prevalence, nature and causes of prescribing and monitoring errors made by General Practitioners; 6048 unique prescription items for 1777 patients were investigated. Prescribing or monitoring errors were relatively common and were detected in 1 in 8 patients, and involved around 1 in 20 of all prescriptions. The most common source of errors in prescribing were incomplete information on prescriptions 31.2%, dose/strength errors 17.4% and timing errors 10.5% (Avery et al., 2012). The severity of the 302 reported errors was judged on a validated 0-10 scale (0 = no risk of harm; 10 = death): 128 (42.4%) were deemed to be minor; 163 (54.0%) moderate; and 11 (3.6%) severe. Considered together, 0.18% of all prescriptions were associated with severe error, however, there were no documented evidence of harm arising from them.

Medication reviews by the Medicines Management team have the potential to improve patient safety and reduce hospital admissions through acting on information to correct prescription errors. Unsurprisingly, Medicine Management is a core initiative in improving the region's health and reduce acute non-elective episodes and length of stay due to adverse drug events (STP, 2016). However, evidence for the efficacy of Medicines Management

inventions within published literature is severely lacking. The challenge is compounded by the large range of different interventions made, which often do not have data on the likelihood or severity of adverse events or potential costs to primary and secondary care.

Consequently, the aim of Work Package 1 of this evaluation is to explore the efficacy of current risk modelling and management practices in the Medicines Management team, evidenced by secondary analysis of SharePoint data and current academic literature.

Methods

Table 1 highlights six examples of medication safety work undertaken by Southern Derbyshire Medicines Management team. The six examples focus on single and multiple patient interventions (x3 and x4, respectively) and influence interventions (x2).

Table 1: *Example medication safety work undertaken by the Medicines Management Team.*

Intervention	Reference	Type (Predominant)
Clozapine	Local Event	Single and Multiple
Adrenaline	March 2016 MSM	Single and Multiple | Influence
Azithromycin	March 2016 MSM	Influence
Clostridium Difficile	May 2016 team meeting	Influence
Buprenorphine Patches	April 2016 MSM	Single and Multiple
ACE/ARB & Spironolactone	MHRA Safety Update Feb 2016	Single and Multiple

For each item the following information is presented on the intervention and the analysis conducted:

1. A brief introduction to the intervention that has been made.
2. Example medicines safety message with prospective estimation of the average risk reduction and expenses and savings of the intervention.
3. An analysis of the SharePoint data set, based on estimations of the risk reduction, and expenses and savings of the intervention that are presented in point (2)
4. A summary of the completeness of the main SharePoint intervention data.
5. The key learning points arising through the analysis of the dataset.

These may be found in the accompanying Annex Document.

Assumptions – Risk

The current method of risk stratification, using the NHS's National Patient Safety Agency risk matrix (National Patient Saftey Agency, 2008) is considered the most appropriate tool for risk stratification in Medicines Management. It is the recommended tool, specifically developed for risk managers within the NHS.

During the analysis issues were identified with the risk matrixes inconsistent use, in particular the large number of records that do not have a risk score attributed to them. Recommendations are presented for the central determination of risk scores, prior to the issue of internal medicines safety messages. As a consequence, for each of the six example interventions risk scores have been retrospectively calculated.

For the determination of each interventions risk reduction a number of assumptions were made:

- Risk stratification was conducted following the guidelines laid out in "A risk matrix for risk managers" (National Patient Saftey Agency, 2008).

- Risk stratification is performed both pre and post intervention. Where evidence in academic literature or medicine safety messages were found these have been used and are referenced. If such evidence was not available then an informed decision was made, based on information in the British National Formulary (BNF 72; Royal Pharmaceutical Society of Great Britain, 2016), Patient Information Leaflets and Pharmacist knowledge.
- Risk stratification is calculated based on the intervention being conducted and does not take into account other possible comorbidities or medications (unless specified in the intervention).
- The risk stratification assumes that interventions are acted on appropriately and were correctly recorded.
- The calculation of an overall risk stratification score removes issues with inter- and intra-rater reliability, reduces demands placed on medicines management team. However, it is acknowledged that in some cases some may be under-reported, others over, but across sample there will be error in any case.

Assumptions – Cost

For the calculation of cost savings it was assumed that, once the medicines management team were aware of the need for an intervention to made, a suitably experienced staff member would have to make the intervention in a timely and thorough manner. In most cases this would be expected to be a clinical pharmacist performing the intervention, it has been assumed that the next most suitable member of the clinical team would be the General Practitioner.

For the estimation of the expenses incurred and potential cost savings the following assumptions were made:

- It was assumed that, once identified, the intervention would have to be made by a suitably experienced and qualified member of staff.
- Savings and expenses were calculated based on the following cost factors:
    - General Practitioner - £80 per hour
    - Nurse - £40 per hour
    - Clinical Pharmacist - £30 per hour
    - Administrator - £8 per hour
- In almost all cases the greatest cost saving by the Medicines Management team occurs because of the clinical pharmacist performing the intervention, over the next most suitable member of the clinical team – the General Practitioner. In all cases, not only is the clinical pharmacist ~2.6x cheaper, but they are also likely to perform the intervention at least as quick and at least as well.
- Where evidence exists of admissions avoided, these savings have been included. Because of the individual specific nature of the interventions explored examples in literature are not common. However, given the scale of the risk reduction and the relatively small expenses incurred performing the intervention (2 to 19 points) a single hospital admission lasting just a few days avoided would result in significant savings.

WP 1: Key findings

The SharePoint data set is comprised of 11,507 records and 38,843 interventions, recorded between Februarys 2015 - 2017. Interventions were made across Southern Derbyshire – AV & SD; DAC; DCN; Erewash; and Southern Derbyshire SWAD areas. 41 Pharmacists contributed records of interventions made.

The quality of the data contained within the dataset varies considerably. While free text descriptions are frequently completed to a high level of detail, information such as risk stratification and time savings were frequently omitted.

Six case studies were examined, selected by Southern Deryshire's Medicines Management team to represent the breadth of the work done by the team. The case studies explore entries relating to Clozapine; Adrenaline; Azithromycin; Clostridium Difficile; Buprenorphine; ACE/ ARB and Spironolactone.

A summary of the analysed data is presented in **Table 2**, a detailed breakdown of each of the interventions, assumptions made and the data set are contained in the accompanying annex document.

Evidence for the efficacy of each specific intervention were not typically available in literature. Interventions were largely based on single incidents, which brought about the need for an intervention.

Each of the interventions resulted in a considerable reduction in stratified patients risk score (National Patient Saftey Agency, 2008), decreasing by between 2 and 19 points.

In primary care, the greatest cost saving are likely to be derived from a member of the medicines management team updating the patients records, over the General Practitioner performing a similar role (see note on the assumption, page 7). Given that the General Practitioner time costs over twice that of the pharmacists, the pharmacist is cheaper while also likely to be able to perform the task at least as quick (General Practitioner @£80 per hour). Total net savings of the six intervention were approximately £10896.90.

A further £37134 (up to) may have resulted from Buprenorphine patch switches, however from the SharePoint records it is unclear whether a switch was made in all cases.

Given the predicted risk reduction from extreme (>15 points) to high risk (8 to 12 points) in many cases it is also likely that there will be avoided hospital admissions (Emblin et al., 2016). Accurate predictions of cost saving of admission avoidance could not be made, but even a single avoided admission and short hospital stay would eclipse the cost of performing the interventions.

The current method of risk stratification, using the NHS's National Patient Safety Agency (National Patient Saftey Agency, 2008) is considered the most appropriate tool for risk stratification in Medicines Management. However, issues were identified with its inconsistent use, in particular the large number of records that do not have a risk score attributed to them. Recommendations are presented for the central determination of risk scores, prior to the issue of medicines safety messages.

WP 1: Recommendations

A series of recommendations are presented for Southern Derbyshire's Medicines Management Teams senior management to consider.

a. The Medicines Management Team should simplify the recording of interventions on SharePoint based on Medicines Safety Messages:

- Interventions based on medicines safety message may be better recorded separately, with pre-calculated risk stratification, expenses and cost saving. This would avoid the need for pharmacists to populate such information (see examples for each intervention in Annex A to F).
- Recording interventions made based on Medicines Safety Message would also allow for the inclusions of auto-populating cells, based on pre-calculated estimations of risk reduction, expenses and cost saving providing immediate feedback to Pharmacists.
- Pre-calculated risk and expenses removes issues with inter- and intra-rater reliability, reduces demands placed on medicines management team. While in some cases risk, costs and saving may be under-reported, and others over, across population there will be a reduction in error in any case.
- Consistently take into account the time saved for other clinical staff performing searches – e.g. GP, member of the medicines management team are likely to be able to perform the search and intervention faster, easier and for a lower cost (~£30 ph. Vs. ~£80 ph.).

b. The Medicines Management Team should have a single sheet for the recording of single and multiple interventions, with a simpler form:

- Include a brief definition of intervention with tick box or number to indicate when an intervention has been made.

- Ensure that fields on the SharePoint site for entering the number of patients identified are compulsory.

c. The Medicines Management Team should clarify information required when recording influence interventions:

- Record influence interventions in such a way as it is possible to determine the number of prescribers who have been influenced as a proportion of the total prescribers.
- If follow-ups for influence interventions are necessary, record in such a way as it is easy to determine the completion of the follow-up and initial intervention.

d. The Medicines Management Team should simplify the number of data items recorded in the SharePoint dataset:

- There are a large number of columns which do not contain information, are inconsistently completed or are duplications (See Annex H – Data Dictionary).
- The simplification will speed up data entry, aid analysis and will likely increase the completion of essential items.

Table 2: *Summary of example medication safety work undertaken by the Medicines Management Team, with the number of interventions, risk reductions and net savings highlighted.*

Intervention	Type	No# reviews, interventions and influences	Risk Reduction	Net Saving (predominantly Pharmacists vs. GP)	Summary
Clozapine	Single and Multiple	126 reviewed 141 interventions	4 – 8 point	£12.50 per patient review **Net Saving** **£1575 to £1762.50**	In 11 weeks 141 interventions were made, taking 35 hours at an estimated cost of £7.50 per patient review. Each interventions resulted in a likely 4 to 8 point risk reduction to the patients. Given the magnitude of the risk reduction and previous published cases of hospital admissions arising from Clozapine drug-drug interactions, admissions are likely to be avoided- even a single admission will exceed the expense of the intervention.
Adrenaline	Single and Multiple	1353 reviewed 224 interventions	4 – 8 point	£1.60 per patient review £10.40 per patient intervention	In 31 weeks 224 interventions were made, taking 93.6 hours to identify and make the interventions at an estimated cost of £7.50 per patient (review and intervention). Each interventions resulted in a likely 4 to 8 point risk reduction to the patients. There is little published evidence of the likelihood of adverse consequences of a patient receiving a sub-therapeutic dose of Adrenaline. However, given the magnitude of the risk reduction occurring through ensuring that patients do not receive a sub-therapeutic dose of adrenaline in the case of anaphylaxis it is likely that there will be significant benefit to patient health and possibly avoided admission.
	Influence	31 prescribers influenced		5 min per practice x 55 **Net Saving** **£4723.15**	There have been three records made concerning the implementation of the protocol to alert prescribers to weight vs. strength. It appears from the records that only a small number of the prescribers have been reached. The likelihood of the advice uptake is also of limited use as there is no follow up information.
Azithromycin	Influence	97 prescribers influenced	15 – 19 point reduction	5 min per practice x 55	The influence intervention resulted in 34 records made concerning the implementation of the protocol to alert prescribers to the correct dose of Azithromycin. It appears from the records that 97, of an unknown total number of prescribers, had been influenced. The likelihood of the advice uptake was reported as 8.8 of 10, however this is also of limited use as there is no follow up information.
	Single and Multiple	94 reviewed 3 interventions		£1.60 per review £10.40 per intervention **Net Saving** **£410.35**	In the 33 weeks 94 patients were identified and reviewed and 3 interventions were made, taking 4.25 hours to identify and make the interventions at an estimated cost of £7.50 per patient (review and intervention). Each interventions resulted in reduction in risk to the patients to a low or very low level to the patients. Given the magnitude of the risk reduction occurring through ensuring that patients receive the correct dose of Azithromycin there are also likely to be further significant savings associated with avoided admissions, however, there is no published evidence to base financial assumptions on. Even a single avoided admission will outweigh the low cost of the intervention.

Clostridium Difficile	Influence	30 prescribers influenced	4 – 6 point reduction	5 min per practice x 55 **Net Saving** **£228.75**	The influence intervention resulted in 9 records made concerning the implementation of the protocol to alert prescribers to patients with a history of Clostridium Difficile infection. It appears from the records that 30, of an unknown total number of prescribers, had been influenced. The likelihood of the advice uptake was reported as 8.25 of 10, however this is also of limited use as there is no follow up information.
Buprenorphine	Single and Multiple	520 reviewed 336 interventions	2 – 4 point reduction	£10 per patient review Switches up to £37134 **Net Saving** **£3250 +** **Up to £37134**	In 32 weeks 520 patients were reviewed and 336 interventions were made, at an estimated cost of £3.75 per patient. Each interventions resulted in a likely 4-6 point risk reduction. A considerable cost saving may have also been achieved of up to £37134, assuming all interventions switching to branded patches at 4 days per patch.
ACE/ARB & Spironolactone	Single and Multiple	133 reviewed 19 interventions	7-10 point reduction	£4.15 per review £8.30 per intervention **Net Saving** **£709.65**	In 32 weeks 133 reviews and 19 interventions were made, taking 14.2 hours at a cost of £427.30. Each interventions resulted in a likely 7 to 10 point risk reduction, however, decision is made not to continue co-prescription risk score will be 1. Given the magnitude of the risk reduction and previous published cases of hospital admissions arising from hyperkalemia, admissions are likely to be avoided- even a single admission will exceed the expense of the intervention.
TOTALS		2226 patients reviews 723 interventions made 158 prescribers influenced	2 to 19 point risk reduction	**£10896.90 net saving** **Plus Switches up to £37134**	

WP 1: Summary

This section concludes the first part of the commissioned evaluation of the role and value of Medicine Management. This section presents the findings and recommendations from the analysis of Southern Derbyshire Medicine Management "Work Log" SharePoint data set. 11,507 records and 38,843 interventions, recorded between Februarys 2015 – 2017 were analysed. From this dataset, six case studies were examined, selected by Southern Derbyshire's Medicines Management team, representing the breadth of the work done by the team. The case studies explore entries relating to Clozapine; Adrenaline; Azithromycin; Clostridium Difficile; Buprenorphine; ACE/ ARB and Spironolactone.

The findings of the six case studies highlight the significant value of the Medicines Management team's work, with significant patient risk reductions and primary care cost saving across the explored interventions (Table 1). However, the evaluation has also highlighted a number of challenges, including the calculation of patient risk stratification, costs incurred/saved and the recording of interventions on SharePoint. Specifically,

(1) The current method of risk stratification, using the NHS's National Patient Safety Agency risk matrix (National Patient Saftey Agency, 2008) is considered the most appropriate tool for risk stratification in Medicines Management. However, it has been used inconsistently, it is recommended scores are determined centrally prior to the issue of internal medicines safety messages;
(2) In primary care, the greatest cost saving are likely to be derived from a member of the medicines management team performing medicines management intervention, over the General Practitioner performing a similar role. Cost savings have only been estimated for primary care, it is highly likely that there will also be knock-on cost savings in secondary care, however, the lack of available data makes calculation impossible;
(3) The quality of the SharePoint records varies considerably. While the free-text notes are generally excellent, records of risk stratification and cost saving are inconsistent. It is recommended that the SharePoint dataset is simplified, risk stratification and costs are pre-calculated and the number of data points reduced.

Work Package 2: Clinical Pharmacists in Patient Facing Roles

Work package 2 presents the findings and recommendations from our evaluation of the project to embed Clinical Pharmacists in Patient Facing roles within the 'Belper Five' group of practices. This element of the report continues to explore the value of medicines management from the viewpoint of the expanded role of the patient facing Clinical Pharmacists within a general practice setting.

This report summarises the key findings from the literature review and interviews. Further detailed analysis of each of the items is contained within the detailed overview (*WP 2: Detailed* Overview*, page 16*), whilst the full analysis of each of the items is contained in the separate accompanying annex document.

WP 2: Executive Summary

The practices in the locality known as the 'Belper Five' identified the opportunity to enhance the model of primary care by incorporating clinical pharmacy into their core practice teams. This new mixed model of care has a particular focus on patients with chronic physical and mental health conditions & the frail elderly population. This has enabled patients to self-care and remain as independent as possible, whilst retaining and enhancing core medicines management support.

The aim of this evaluation was to explore the role and impact of patient facing Clinical Pharmacists within the Belper Five. Semi-structured interviews were conducted to explore the views of Clinical Pharmacists, Pharmacy Technicians and GP's of the expanded role in order to identify strengths of the model and also highlight areas to be addressed.

Key findings

Benefits to Patients

Patients benefit from Clinical Pharmacist-led clinics within the practice. The clinics offer face-to-face reviews, with the aims of enhancing patients' understanding of medications and their use, and ensuring optimal management of patients' prescriptions. This in turn will reduce inappropriate and unnecessary prescribing. The Clinical Pharmacists provide quick access to medication advice, detailed medication reviews, greater time to discuss medications with patients and provide a different perspective on patients' medication. This, in turn, is likely to reduce the number of hospital admissions and readmissions by supporting patients and identifying and addressing medicines related issues.

Benefit to Practice

The greatest benefits to the practices are derived from additional capacity, with the pharmacy clinics providing access to expertise in medication for patients, resulting in the redistribution of practice medication related administrative work. This enables GPs and other members of the practice to work to the top of their licence and expertise, termed *'right clinician, right time'*, whilst also delivering specialist expertise in medication.

Benefits to Medicines Management

The dual role (clinical / medicines management) of the Clinical Pharmacist means that they are present in the practice over the course of the whole week. Consequently, GPs described being more aware of medication related work and pharmacy issues; while the Pharmacists discussed a developed appreciation of the challenges faced by GPs when prescribing and the implementation of interventions.

The original MoU between Southern Derbyshire CCG and the practices, sets out that the Clinical Pharmacy Team will develop, support, implement and monitor prescribing and medicines optimisation strategies at the individual GP practice level, which are strongly linked to national and local priorities. Our view is that this has been taking place across the four practices, but only to a limited degree due to the pressures on staff time. The role is limited by the amount of time Clinical Pharmacists have during the working week. Staff reported that the time taken up by meetings was disproportionate to the amount of time spent performing their role. Additional pressure has been placed on the medicines management role as some of the Clinical Pharmacists are covering the medicines management of another practice in addition to their host practice due to staffing shortages.

Supporting the Clinical Pharmacists

The formative nature of the role and the varied experience of the Clinical Pharmacist has been aided by the support offered by both the practices and the CCG. The Clinical Pharmacists described the effective support given by the practices and GP mentors, supporting their integration as members of the practices and as patient facing clinicians. The Clinical Pharmacist Lead was highlighted as a critical part of the support and essential in facilitating their integration into their practice. Further, the Clinical Pharmacists described the benefits of the support network that the CCG medicines management team afford.

Continued Professional Development

Clinical Pharmacists in patient facing roles within practices in the Belper Five bring together individuals with a diverse range of skills. The Clinical Pharmacists all felt their consultation skills had developed significantly over the past year and the Practices had been very supportive of their development needs. The Clinical Pharmacists attested to the value of the consultation skill training provided by one of the GP mentors.

The non-medical prescribing qualification held by all of the Clinical Pharmacists was seen as invaluable in the development of particular areas of expertise and consultation skills. Whilst not essential for Clinical Pharmacists to undertake a patient facing role, it allows the Clinical Pharmacist to make autonomous prescribing decisions and be responsible and accountable for clinical care of patients within their area of clinical competence. A single Clinical Pharmacist highlighted that while they are a qualified NMP, they are making prescribing decisions, but they are not signing prescriptions due to concerns over insurance.

Monitoring and Evaluation

To date, the monitoring and evaluation has consisted of the Clinical Pharmacists collecting data on patient and medication related work done. Given the greater proportion of time spent on medication related administrative work, it is unsurprising a greater number of interventions were recorded. However, a number of issues were highlighted pertaining to the recording of impact: the time taken for each intervention to be recorded on the system; complaints of the space that is taken up by coding on patients records that only serves evaluation purpose; the codes that have been chosen not representing the absolute range of tasks performed by the Clinical Pharmacist; inconsistency in recording between practices; and, finally, difference in the roles between practices.

There is a need, going forward, to collect patient feedback on the scheme. The MoU sets out a number of items for monitoring that would only be possible to collect directly from patients themselves; namely, improvements in the patient experience and increased patient satisfaction levels. These should be considered for collection in the future.

The Pharmacy Technician

The Pharmacy Technician within the Belper Five supports all four practices, with their time split between the practices. Most of the Pharmacy Technicians day is spent doing Medicines Management work for the team, with a small amount of time spent on other items. The Pharmacy Technician is an important part of the model of *'right patient, right clinician'*, easing the medication related administrative work load of the practice and the Clinical Pharmacists.

Recommendations

1. The practices and CCG should consider whether the work being completed currently is the best use of the Clinical Pharmacists expertise within the practice.
    a. The balance between the clinical and medication aspects of the role should be maintained.
    b. The CCG and practices may wish to explore whether the Clinical Pharmacists are seeing the most appropriate patients. Our evaluation would suggest that those with chronic conditions and/or polypharmacy will obtain the most benefit.
    c. The CCG and practices may wish to consider the appropriateness of current inclusion of care home and home visits in the project MoU. Currently, there is limited work being completed in these areas.
2. The practices should consider who the most appropriate person to complete discharges within each practice is.
3. The CCG should review and make explicit the proportion of the Clinical Pharmacists time spent on CCG meetings.
4. The CCG may wish to consider the amount of Pharmacy Technician time available.
   The practices and CCG may wish to consider further training sessions for the Clinical Pharmacists and the Pharmacy Technician. This may include consideration of the provision of clinical examination skills training to assist with patient consultation. The practices and CCGs should consider training on specific frequently occurring request – for example minor ear and throat infections. However, if Clinical Pharmacists are trained in these broader area, we recommend that the focus of the majority of their work doesn't shift considerably.
5. The CCG should consider the objective of the quantitative monitoring and evaluation of the project.
    a. The CCG should consider what 'good' looks like.
    b. Appropriate data collection methods should then be determined.
    c. Patient satisfaction should be determined.

Conclusion

To summarise key findings of work package two – the benefits to both the practice and patients are clear. Not only are the Clinical Pharmacists an invaluable source of expertise on medication, they reduce GPs workload, allowing them to concentrate on patients with acute conditions. The Clinical Pharmacist also provides expert knowledge to the patient in the form of their clinics, with longer clinics allowing for more detailed medication reviews, an impartial conversation and a different perspective on their medication. There is scope for the expansion of the Clinical Pharmacists role, however, careful consideration of the priorities would be required.

WP 2: Detailed Overview

Patient facing Clinical Pharmacists in the 'Belper Five'

The practices in the locality known as the 'Belper Five' identified the opportunity to redefine the model of care by incorporating clinical pharmacy into their core practice teams. It was felt that this would help the practices to respond better to the multiple challenges faced by health and social care services across the area. These challenges include providing care for an increasingly frail elderly population with complex needs and increased patient expectations, meeting an increased demand for services within constrained finances and recruiting and retaining high-quality staff.

The new mixed model of care described here, has a particular focus on people with chronic physical and mental health conditions & the frail elderly, in order to enable patients to self-care and remain as independent as possible, whilst retaining and enhancing core medicines management support.

The model of care adopted in the Belper five area includes 2 core Clinical Pharmacist roles:

1. The development of Clinical Pharmacists in patient-facing roles. This is a newly resourced provider role and is supported by a medicines management technician. This part of the role is new and described within the Memorandum of Understanding agreed between the CCG medicines management team and the practices in Belper.
2. The core commissioned Medicines Management support continues as historically resourced and delivers commissioning functions relating to medications.

The memorandum of understanding (MoU) between the GP Practices of the Belper Five and NHS Southern Derbyshire Clinical Commissioning Group (SDCCG) is referred to throughout this evaluation (Annex N).

Literature Review

An ever-increasing workload on General Practitioners (GP) has necessitated consideration of how the skills of the wider workforce may be deployed to meet patients' needs and to help GPs' to focus on patients that only they can appropriately support. As set out in the GP Forward View (2016) expanding the role of Pharmacists is one potential element of the solution *"Pharmacists remain one of the most underutilised professional resources in the system and we must bring their considerable skills in to play more fully."* (p. 7). There is a significant opportunity for Pharmacists to adopt an expanded patient-centred role, while also contributing to the safe, effective and economic use of drugs (WHO, 1994). An expansion of the role of the Pharmacists has been supported by experts from academia (Mossialos et al., 2015; Mossialos, Naci, & Courtin, 2013; Schindel et al., 2017) and professional organisations, for example as previously promoted by the World Health Organization (WHO) and the International Pharmaceutical Federation (FIP) (Joint Statement WHO and FIP, 2011). This shift is associated with collaboration and the assumption of greater responsibility for patient care. Such a shift is consistent with the principles of pharmaceutical care as proposed by Hepler and Strand (1990): specifically, a central tenet of pharmaceutical care is that Clinical Pharmacists accept responsibility for ensuring safe and appropriate drug therapy.

The aim of the expanded role of Clinical Pharmacists in the Belper five practices is to look after patients in such a way as to improve patient outcomes, reduce pressures on GP time, avoid hospital admissions, reduce risk and improve the management of multimorbidity and chronic diseases. Evidence, within academic literature, for these outcomes continues to grow as a number of countries have begun to implement policies to expand the role of Pharmacists (Mossialos et al., 2015; Schindel et al., 2017). The evidence is developing highlighting the reduction of hypertension in patients managed by Pharmacists, versus those managed by their primary care provider (Hirsch et al., 2014). Pharmacist based interventions in chronic kidney disease have also been found to increase guideline adherence of patients (Cooney et al., 2015) and in diabetic patients to improve medication adherence and glycemic control (Skinner, Poe, Hopper, Boyer, & Wilkins, 2015). Consequently, it is unsurprising there is significant national and regional interest in expanding the role of Pharmacists.

Evidence for the effectiveness of the close monitoring of medication continues to grow (Cooney et al., 2015; Hirsch et al., 2014; Skinner et al., 2015). However, research examining the perceptions of Clinical Pharmacists' roles in the era of expanded scopes of practice has been minimal. Within research completed to date, a qualitative study of Clinical Pharmacists in England identified role ambiguity and lack of clear direction regarding the Clinical Pharmacist's contribution to patient care in contemporary pharmacy practice (Elvey, Hassell, & Hall, 2013). More recently, Schindel et al. (2017) explored perceptions of the expanded role of the Pharmacist, particularly highlighting public expectations of the expanded role, the greater responsibility of the role and collaboration. Schindel et al. (2017) also highlighted the importance of understanding the Pharmacists' relationship with other health care professionals.

Aim

The core aim of this evaluation was to explore the role and impact of patient facing Clinical Pharmacists within primary care in Southern Derbyshire, with a specific focus on the model that has been implemented in the Belper Five. Specifically, to develop a quantitative and qualitative research informed understanding of the value and benefits of the dual role of the patient facing Clinical Pharmacists and, unique to the Belper Five project, medicine management.

Methods

Semi-structured interviews were conducted to examine Clinical Pharmacists, Pharmacy Technicians and GP's views of the expanded role of the Clinical Pharmacist in the Belper Five. Interviews were conducted with the Clinical Pharmacists and GP mentors from Riversdale Surgery, Appletree Medical Practice, Arthur Medical Centre and Whitemoor Medical Centre. Ethical approval for the research was granted by the Health and Social Care research ethics committee. The full methods may be found in the accompanying Annex document.

WP 2: Key findings

The following constitutes a summary of the themes and subthemes from the interviews conducted to date. The full detailed analysis may be found in the accompanying Annex document.

Benefits to Patients

The MoU project sets out the desire to improve patient care and patient experience and to increase patient satisfaction. This was expected to be achieved through the development of Clinical Pharmacist-led clinics within the practice which offer face-to-face reviews with patients, help enhance patients' understanding of medications and their use, and ensures optimal management of patients' prescriptions in order to reduce inappropriate and unnecessary prescribing. This, in turn, is expected to reduce the number of hospital admissions and readmissions by supporting patients and identifying and addressing medicines related issues.

Key benefits to patients highlighted in the interviews focussed on quicker access to medication advice, detailed medication reviews, greater time to discuss medications with patients and providing a different perspective on patients' medication. It is worth highlighting that the face-to-face contact with patients was described by the Clinical Pharmacists as one of the most enjoyable and fulfilling aspects of the role. The key benefits to patients were as follows:

1. ***Quicker access to medication advice.*** Three of the four Clinical Pharmacists have regular telephone consultations slots. The provision of telephone consultations provides easier access to medication related expertise for patients, particularly those who are unable to attend the practice. The telephone consultations provide additional time to support the frail & elderly population covered by the practice.

2. ***Detailed medication reviews.*** Clinical Pharmacists are able to complete detailed reviews of patients' medications. As will be highlighted later in point 2 of *'benefits to practice'* prior to the project medications reviews were usually completed by GPs. This work was taken off GPs (freeing up time for them) and taken over by the Clinical Pharmacists. The detailed medication reviews were particularly beneficial to patients with polypharmacy and those with chronic conditions. Clinical Pharmacists also reported that the focused nature of these medications review appointments was beneficial as they were largely free from the distraction of patients' acute conditions.

3. ***Time to explain to patients.*** Clinical Pharmacists appointments are longer than those typical of GPs and nurses, providing additional time to explore medication queries and discuss issues with patients. The length of the appointments that the Clinical Pharmacist has varies between practice, but typically are longer than the 10 minutes afforded to GPs, with the addition of regular catch-up slots. This facilitates an improved clinician to patient experience and is likely to result in an increased knowledge and understanding by the patient of their own medications.

4. ***Different clinical perspective.*** The Clinical Pharmacists appointments provide patients with a different clinical perspective on their treatments. Clinical Pharmacist expertise allows for the discussion of alternative treatments and enables the clinician to explore potential treatment interactions that may have otherwise been missed. Patients may be more honest with Clinical Pharmacists when discussing their medications and adherence to treatment regimes. This may be because patients view the Clinical Pharmacists as more impartial than the GPs in the patients overall treatment. Anecdotally, rather than telling their doctor what they want to hear, the patients seem to be more willing to discuss openly their medication adherence with the Clinical Pharmacists.

The following challenge was also apparent:

5. ***Selecting the correct patients.*** In order to maximise the effectiveness of the delivery of their clinics, it is necessary to ensure that the Clinical Pharmacist are seeing the most appropriate patients: those with chronic conditions and/or polypharmacy. This is likely to be achieved in two ways, though directions provided to reception staff of who to book onto clinics and secondly through the proactive selection of patients that require detailed medication reviews.

There would be benefit for the collection of data on patient satisfaction data to support the data currently collected on Clinical Pharmacists and this report. This is discussed in more detail in section 2.6 *'Monitoring and Evaluation'*.

Benefits to Practice

There was no doubt expressed by any of the Clinical Pharmacist or GPs as to the value of Clinical Pharmacists in patient facing roles within the Belper Five. It was expressed by both GPs and Clinical Pharmacists that the project had met the primary aim set out in the MoU – providing improved access to care for patients. Primarily, the benefit to the practice may be divided into three key areas:

1. ***Increased Capacity***. The presence of the Clinical Pharmacist within each of the practices provides additional capacity through:
    a. the clinics of the Clinical Pharmacists providing access to expertise in medication for patients, and
    b. the redistribution of practice medication related administrative work to the Clinical Pharmacists and the Pharmacy Technician.

    This extra capacity resulted in another key benefit, a more appropriate distinction between GPs and Clinical Pharmacists in terms of the types of patients each saw. GPs reported seeing acutely unwell patients, whilst Clinical Pharmacists predominantly focussed on those with chronic conditions and polypharmacy. The net gain of this demarcation appears to be a more appropriate use of practitioners' time within each practice.

2. ***Facilitates GPs and other members of the practice working to the top of their licence and expertise, 'right clinician, right time'.*** The provision of a Clinical Pharmacists within the practice has allowed the GPs to spend a greater proportion of their time working to the top of their expertise: seeing the most complex of cases and those with acute needs. One of the desired outcomes of the project was a reduction

in the number of GP appointments (MoU). However, the phrasing of this objective may not be correct. Rather than reducing workload, it was reported that the model redistributes work and allows the GPs to spend their time seeing the most appropriate patients. This was termed *'right clinician, right time'* by one GP.

3. ***Delivers expertise in medications within the practice.*** The final primary benefit to the practice is the Clinical Pharmacist's expertise in medications. The MoU states that the Clinical Pharmacist will become the practice resource for medicine-related queries. They will promote high quality, evidence based and cost-effective use of medicines within the practice, as well as providing additional support to introduce the latest NICE guidance The Clinical Pharmacists have a detailed and up-to-date understanding of local and national medications guidelines and are easily accessible by all staff within the practice. Medication related queries are easily directed to the Clinical Pharmacist and are responded to quickly with evidenced based answer, in terms of both what to do and what the guidelines say.

Benefits of Medicines Management

Unique to the Clinical Pharmacists in a patient facing roles within the Belper Five, is the Medicines Management element of the role. The Clinical Pharmacy Team aims to increase the number of post-hospital discharge medication reviews, reduce medicines waste, increase patient satisfaction levels relating to medicines use, reduce medicines related GP visits and help enable safe repeat prescribing policies. The Medicines Management element of the role constitutes approximately a third of the Clinical Pharmacists time spent within the practice. The greatest benefit of the dual role, beyond those that are typically provided to all practices through the support of the medicines management team, were described as follows:

1. ***Integration into the practice.*** The greatest benefit of the dual role were related to the presence of the Clinical Pharmacist in the practice over the course of the whole week, rather than a visit on a single set day. Their presence allowed them to integrate into the practice and become a significant resource for medication related queries, as previously discussed.

2. ***Awareness of medicines management agenda.*** Practices described being more aware of medication related work and pharmacy issues as a result of the Clinical Pharmacist being integrated into the Practice team. All but one of the Clinical Pharmacist previously worked in the CCG Medicines Management team prior to starting in the Clinical Pharmacist role. Instead of the CCG Medicines Management agenda being communicated once a week during visits through medicines messages and tasks, the practices have a Clinical Pharmacist present in the practice throughout the week.

3. ***An appreciation of medicines management from the practices perspective.*** The Clinical Pharmacists who had previously worked in the Medicines Management team discussed a developed appreciation of the challenges faced by GPs when prescribing and the implementation of interventions.

4. ***Influence repeat prescribing and conduct audits.*** The MoU sets out that the Clinical Pharmacy Team will develop, support, implement and monitor prescribing and medicines optimisation strategies at the individual GP practice level strongly linked to national and local priorities. Further, specifically that the team will establish and monitor a repeat prescribing system to ensure a high level of efficiency and governance. This has been taking place across the four practices to a limited degree, due to the pressures on the time of the Clinical Pharmacists, there is further scope for more work in these areas, Clinical Pharmacist time permitting.

5. ***The medicines management position.*** Whilst not discussed by the Clinical Pharmacists, the medicines management position was highlighted as a possible source of tension between the practice and the Clinical Pharmacists by the Clinical Pharmacist Lead. The dual role of the Clinical Pharmacists could

place them in the position where they are making decisions that conflict with the messages of the Medicines Management Team. This does also provide the Clinical Pharmacist with a better understanding of the decisions that other prescribers make and the rationale behind their decisions. Both the practices and the CCG should be aware of such potential for conflict.

6. ***Time.*** Highlighted by all the Clinical Pharmacists were the challenges of their role being limited only by the amount of time that they had during the working week. While there are a large number of tasks that the Clinical Pharmacists expertise were well suited to, there is a need to prioritise based on the practice, and where the greatest value of the role of the Clinical Pharmacist lies.
    a. Furthermore, it was suggested that the amount of the Clinical Pharmacists Medicines Management time that was taken up by meetings was disproportionate to the amount of time spent performing their role. It is suggested that there may be a benefit in rationalising the proportion of time taken by meetings.

7. ***Differentiation between practice and CCG time.*** The line between the medicines management and practice sides of the role are often blurred. One of the greatest strengths of the project is the combination of the Clinical Pharmacist patient facing role and the medicines management aspect. This has both benefits to the practice and the patients. However, the division of time between the two parts of the role and what constitutes medicines management work is often blurred.

8. ***Second Practice.*** Additional pressure has been placed on the CCG time of two of the Clinical Pharmacists, as they are both covering the medicines management of another practice. It would appear that this is an unavoidable commitment for members of the Medicines Management Team to cover other practices for staff shortages. This comes out of the Clinical Pharmacist Medicines Management time.

Supporting the Clinical Pharmacists

The formative nature of the role and the varied experience of the Clinical Pharmacist has been aided by the support offered by both the practices and the CCG. The practices have met, and likely exceeded the requirement of supporting the induction of the clinical pharmacy team members into the practice, as set out in the MoU. Additionally, there were no mention by the Clinical Pharmacists around issues relating to access to IT systems, or issues relating to clinical system support or training.

1. ***Integration into the practice team.*** The nature of the integration of the Clinical Pharmacist into the practices necessitates close relationships with GPs, nurses, receptionist and other staff within the practice to maximise their benefit. There was no doubt from any members of the Clinical Pharmacist team of the support received from the practices in becoming integrated members of the practice team(s). The relationship is bi-directional, not only have all of the Clinical Pharmacists discuss receive support from existing members of the practice but as previously discussed the Clinical Pharmacist are able to offer medication related expertise to all members of each practice.

2. ***GP Mentor.*** Within each of the practices of the Belper Five, GP mentor were identified and support the clinical debriefs, responding to the needs of the Clinical Pharmacist and to provide general support/monitoring as set out in the MoU. Clinical Pharmacists described the effective support given by the GP lead at each of the practice. Supporting their development as members of the practices and as patient facing clinicians.

3. ***Clinical Pharmacist Lead.*** The Clinical Pharmacist Lead acts as a clinical mentor to the Clinical Pharmacist and Pharmacy Technician. They were discussed as a critical part of the support of the Clinical Pharmacists and essential in facilitating their integration into their practice. Their role, meets the requirements set out in the MoU includes, liaising with the practice team to ensure that all staff

understand the role of the Clinical Pharmacy Team and ensure suitable patients are referred to them; working with individuals to develop a Competency Assurance Framework; and, liaising with the Belper five Clinical Pharmacist Lead to discuss progress and performance of individual Clinical Pharmacists to assist the appraisal and monthly 1:1 of the individuals.

4. ***A support network.*** With the exception of the Clinical Pharmacist in a practice with the Clinical Pharmacist Lead there is currently a single Clinical Pharmacist in each of the practices within the Belper Five. The Clinical Pharmacist are supported within the practices by the GPs, GP mentors and the rest of the practice. Consequently, the Clinical Pharmacists described the benefits of the support network that the CCG medicines management team afford. A number of the Clinical Pharmacists also described that a move into primary care setting may be isolating compared to previous roles without such support.

Continued Professional Development

The project with Medicines Management Clinical Pharmacists in patient facing roles within practices in the Belper Five brings together individuals with a diverse range of skills. The continued development of these skills was discussed by GPs and Clinical Pharmacists alike as essential.

6. ***The Clinical Pharmacists' progression.*** The importance of, and need to continue to develop, the clinical skills of the Clinical Pharmacists were highlighted. The Clinical Pharmacist all felt their consultation skills had developed significantly over the past year. The prior knowledge varied between the Clinical Pharmacists, but all stated the Practices had been very supportive of their development. The progression of the Clinical Pharmacist within the role has been considerable.

7. ***Training.*** The importance of, and need to continue to develop, the clinical skills of the Clinical Pharmacists were highlighted. The Clinical Pharmacist all felt their consultation skills had developed significantly over the past year. The prior knowledge varied between the Clinical Pharmacists, but all stated that the Practices had been very supportive of their development needs. The Clinical Pharmacists attested to the value of the consultation skill training provided by one of the GP mentors. Such training would be of use to future Clinical Pharmacists starting in patient facing roles. The non-medical prescribing qualification held by all of the Clinical Pharmacists was invaluable in the development of particular areas of expertise and consultation skills.

8. ***Non-medical prescribers.*** An independent prescribing qualification is not essential for Clinical Pharmacists to undertake a patient facing role. However, it allows the Clinical Pharmacist to make autonomous prescribing decisions and be responsible and accountable for clinical care of patients within their area of clinical competence. The non-medical prescribing courses completed by all of the Clinical Pharmacists was invaluable in the development of particular areas of expertise, and consultation skills. While many of the Clinical Pharmacists stated that the ability to prescribe was useful, the consultation skills that were covered in these courses were considered essential.

The provision of further training in consultation skills and particular clinical skills that will aid the Clinical Pharmacists in the delivery of their clinics and their decision making is desired. There is also likely to be value to the inclusion of other members of the team in training sessions, for example with the possible future expansion of the Pharmacy Technicians role to include compliance checks at patients' homes. Peer support and observations should continue as the Clinical Pharmacist's skills develop.

Concerns regarding indemnity insurance were discussed by one Clinical Pharmacist:

9. ***Insurance.*** A single Clinical Pharmacist highlighted that while they are a qualified NMP, they are making prescribing decisions, but they are not signing prescriptions. This was discussed as being because of concerns about the level of indemnity insurance offered. While this clearly is an issue that should be

addressed, as previously discussed, the decision making and consultation skills associated with the NMP are as, if not more, important than the prescribing.

Monitoring and Evaluation

The monitoring and evaluation of the project of Clinical Pharmacists in patient facing roles within the Belper Five is loosely defined in the MoU: *"To monitor the performance of the clinical pharmacy team model SDCCG will work in a collaborative approach with the Belper GP practices. Both parties shall agree a work plan with agreed outcomes, targets and indicators. The work plan will be agreed at the beginning of each financial year. Any in-year revisions shall be mutually agreed between both parties."*. To date, the monitoring and evaluation has consisted of the Clinical Pharmacists collecting data on work done (Read Codes / SNOMED). This evaluation provides further evidence. There is a need, going forward, to collect patient feedback on the scheme.

Data currently collected by the Clinical Pharmacists, describing the work that they are currently completing are presented in **Table 3**. The measures chosen represent *"Top line headings which encompass some of the smaller sections (e.g. consultation for med review should include compliance check, side effects etc.) so that everyone's data is capturing same work"* (from Email after last meeting re. measures 19/04/17). The values highlighted represent the most recent suite of measures being reported by the Clinical Pharmacists. The work is broadly divided into patient and medication related. Given the greater proportion of time spent on medication related administrative work, it is unsurprising a greater number of interventions are recorded for this aspect.

Table 3: Measures of Clinical Pharmacists work for two periods: Nov '16 to Jan '17 and Feb '17 to Apr '17.

	Nov 16 – Jan 17				Feb 17 – Apr 17			
Measure	**Appletree**	**AMC***	**Riversdale**	**Whitemoor**	**Appletree**	**AMC**	**Riversdale**	**Whitemoor**
Patient								
Telephone contacts	127	87	193	48	99	113	143	81
Face to face consultation [i]	134	53	99	102	98	98	112	79
Number of clinics	22	12	18	22	16	22	16	18
Home visits [ii]	0	3	0	1	0	3	3	3
Care home visits	0	0	0	0	13	0	0	0
Medication								
Discharge summaries	211 (+91 by tech)	68	149	146	115 (+100 by tech)	99	251	117
Outpatient letters	55	101	195	466	33	146	215	203
Script queries - medication requested [iii]	241	246	135	87	154	240	170	174
Queries - clinical information	55	21	63	NR	42	26	51	25
Medication review done (full) [iv]	215	15	86	240	167	29	90	254
Polypharmacy review - deprescribing	13	4	17	14	7	8	7	10

Note: * AMC figures low due to not working in January; [i] *all patients seen;* [ii] *not care homes;* [iii] *acute and repeat;* [iv] *all meds, not just asthma, BP etc; NR not recorded*

A number of issues were highlighted pertaining to the recording of impact. These included, the time taken for each intervention to be recorded on the system; complaints of the space that is taken up by coding on patients records that only serves evaluation purpose; the codes that have been chosen not representing the absolute range of tasks performed by the Clinical Pharmacist; inconsistency in recording between practices; and, finally, difference in the roles between practices. Based on these issues and discussions, it was suggested by the Clinical Pharmacists that many of these issues could be resolved through a more thorough snapshot that is completed at intermittent points, rather than the current continuous evaluation. For example, a detailed evaluation of the extent of the Clinical Pharmacists work that takes place over a one to two week period (depending on the frequency) one or two times a year. Not only would this provide a detailed representative snapshot of the Clinical Pharmacists work, it would define the limits of the need for evaluation.

To date, data collection supporting the efficacy of Clinical Pharmacist in patient facing roles has focused on data collection by the Clinical Pharmacist of their work done. The MoU sets out a number of items for monitoring that would only be possible to collect directly from patients themselves; namely, improvements for the patient experience and increased patient satisfaction levels. While anecdotal feedback has been positive, all GPs and Clinical Pharmacists identified the need for patient satisfaction data to be collected over the coming period.

The Pharmacy Technician

The Pharmacy Technician within the Belper Five supports all four practices, with their time split between the practices. The MoU describes the provision of Pharmacy Technician support as extra Medicine Management resource, supporting the Clinical Pharmacist as directed by them, for example identifying patients who are suitable for review. One of the objectives of work package two was to identify the role of the pharmacy technician within the Belper Five. Given the complexity of the role of the Clinical Pharmacist previously described it is unsurprising then that the Pharmacy Technician role was equally diverse. The technicians' time is split 0.6 versus 0.4 FTE for the Belper Five. The majority of the Pharmacy Technicians day is spent doing medicines management work for the team and then a small amount of time spent on other items.

The Pharmacy Technician is an important part of the model of *'right patient, right clinician'*, as previously discussed. Consequently, the Pharmacy Technician is a critical part of the Belper Five. The Pharmacy Technician eases the medication related administrative work load of the practice and the Clinical Pharmacists. In the same way, as the Clinical Pharmacist is able to take on a considerable amount of the medication related workload within the practice that would usually be completed by the GP, the Pharmacy Technician is able to do the same. Predominantly this consists of rationalising discharge letters. However, there is scope for increasing the effectiveness of the Pharmacy Technicians time. Some of the Pharmacy Technician's work could be completed by another member of the team. For example discharge letters, could be passed to trained administrators for the filtering of discharge letters, eliminating those which need to be read and filed, but do not need actioning, passing those with items that need to be actioned on to the Pharmacy Technician, Clinical Pharmacist or the GP.

WP 2: Recommendations

The nature of the Clinical Pharmacists work within each of the Practices varied, aligning with the individual requirements of each practice. A number of recommendations for the CCG are presented in the following section for both the current project and the future integration of Clinical Pharmacists in general practices.

For the current scheme

The following recommendations are made to the CCG and the practices of the Belper Five:

1. **The practices and CCG should consider whether the work being completed currently is the best use of the Clinical Pharmacists expertise within the practice.** *There is a great deal of work that is, or could be, completed by the Clinical Pharmacists within the practices (see sections 2.1 – Benefits to patients and 2.2 – Benefits to practice). However, the nature of the role has meant the work undertaken by the Clinical Pharmacists has developed 'organically' and individual to each practice.*
    a. **The balance between the clinical and medication aspects of the role should be maintained.** *A significant benefit to both the patient facing and medication administration elements of the role were discussed by both the GPs and Clinical Pharmacists (See sections 2.1 – Benefits to patients and 2.2 – Benefits to practice). It should also be noted that the Clinical Pharmacists also discussed the patient facing aspect as enjoyable and the main reason many applied for the positions (See Section 2.2 – Benefits to patients).*

   b. **The CCG and practices may wish to explore whether the Clinical Pharmacists are seeing the most appropriate patients. Our evaluation would suggest that those with chronic conditions and/or polypharmacy will achieve the most benefit.** *The Clinical Pharmacists have benefited from seeing a wide range of patients in the practices (see section 2.5 - CPD). However, there would be benefit from ensuring the Clinical Pharmacists are seeing patients that best match their clinical expertise, namely those with chronic conditions and polypharmacy.*
   c. **The CCG and practices may wish to consider the appropriateness of current inclusion of care home and home visits in the project MoU. Currently, there is limited work being completed in these areas.** *From the quantitative and qualitative data it is not possible to establish the benefit of Clinical Pharmacists work in these areas. The potential benefits should be established.*

2. **The practices should consider who the most appropriate person to complete discharges within each practice is.** *Discharges take up a significant amount of the Clinical Pharmacist Technician and/or Clinical Pharmacists time (See section 2.3, point 7). Discharges are an example of work that would otherwise be undertaken by the GP. However, there would be significant benefit of exploring whether a trained administrator would be able to take on the processing of discharge letters; continuing to improve the 'right clinician, right patient' model of working.*

3. **The CCG should review and make explicit the proportion of the Clinical Pharmacists time spent on CCG meetings.** *A proportion of the Clinical Pharmacists medicines management time is taken up by meetings (See section 2.3, point 6). There are differing views on this: from the GP and Clinical Pharmacists point of view, too great a proportion of their time is taken up by meetings. From the CCG point of view, the Clinical Pharmacist is a member of the medicines management team and must be included in these meetings to ensure that their agenda is communicated to practices.*

4. **The CCG may wish to consider increasing the amount of Pharmacy Technician time available.** *The Pharmacy Technician provides essential support for all four of the Clinical Pharmacists within the Belper Five project (See section 2.7). Currently, for the 2.1 FTE between the 4 Clinical Pharmacists there is 0.4 FTE Pharmacy Technician time in the practice. From our evaluation, an increase in the ratio of Pharmacy Technician time would represent the lowest cost means of increasing capacity within the practices.*

5. **The practices and CCG may wish to consider further training sessions for the Clinical Pharmacists and the Pharmacy Technician.** *All of the Clinical Pharmacists expressed the desire for further training to assist with their clinics (see Section 2.6, point 2).*
   a. **Consider the provision of clinical examination skills training to assist with patient consultation.** *One example highlighted by the Clinical Pharmacists was training and experience listening to patients' chests sounds to help with prescribing decisions and the management of patients with chronic conditions.*
   b. **Consider training on specific frequently occurring request.** *An example discussed by all of the Clinical Pharmacists were patients asking for their ears to be examined for the excessive build-up of wax.*
      i. **Ensure that if Clinical Pharmacists are trained in these broader area, that the focus of the majority of their work doesn't shift considerably.** *As with recommendation 1.*

6. **The CCG should consider the objective of the quantitative monitoring and evaluation of the project.** *Dissatisfaction with the suite of measures and the means of evaluation was expressed by all of the Clinical Pharmacists. Since carrying out these interviews, a revised list of measures has been proposed and collected (See section 2.6 – monitoring and evaluation). It is unclear whether the measures provide an assessment of the project against the objectives of the MoU.*

   a. **The CCG should consider what 'good' looks like.** *Not only should this consider work done by the Clinical Pharmacists, but also other members of the practice team.*
   b. **Appropriate data collection methods should then be determined.** *Clinical Pharmacists and the Pharmacy Technician expressed a desire to reduce the burden of monitoring. Shorter, more in-depth 'snap-shots' were discussed. The appropriateness of such a method should be considered based on 6.a.*

7. **Patient satisfaction should be determined.** *Currently only anecdotal evidence has been discussed for the benefits to patients of the scheme (See section 2.6 – Monitoring and Evaluation). As required by the MoU, patient satisfaction data should be collected. This may consist of one or more of the following: a patient satisfaction questionnaire, patient participation groups and/ or friend and family test.*

For future schemes

The following recommendation are presented for the future integration of Clinical Pharmacists into practices, based on understanding gained from the interviews:

1. **The needs of practices are different.** *The needs of each practice in the project vary considerably, based on the patient mix, existing members of staff and the experience and expertise of the Clinical Pharmacist.*
   a. **Individual integration of Clinical Pharmacist should be regularly reviewed.** *Given the varying experience of Clinical Pharmacists in patient facing roles the workload should be regularly reviewed.*

2. **The Practices capacity to support and mentor the Clinical Pharmacist is essential.** *This is especially true if the Clinical Pharmacist is not supported by a Medicines Management team.*

3. **Practices should consider the inclusion of a Medication management element.** *GPs described being more aware of medication related work and pharmacy issues; while the Pharmacists discussed a developed appreciation of the challenges faced by GPs when prescribing and the implementation of interventions.*

4. **If practicable, the Clinical Pharmacist should be provided with a dedicated space in practice.** *This will vary based on the capacity of the practice.*

5. **To maximise the benefit of the Clinical Pharmacists, Practices should have a system in place for ensuring that the Pharmacist sees only the most appropriate patients.** *Matching their expertise in medication, polypharmacy and the management of chronic conditions.*

6. **The training needs of the Clinical Pharmacist should be identified and met early on.**

7. **The support of Pharmacy Technician is essential for maximising the benefit of a Clinical Pharmacist.** *The Pharmacy Technician is an important part of the model of 'right patient, right clinician', easing the medication related administrative work load of the practice and the Clinical Pharmacists.*

8. **Whilst not essential that Clinical Pharmacist employed are non-medical prescribers, it is beneficial and desirable.** *Non-medical prescribing streamlines and helps to develop consultation skills whilst providing the Pharmacists with an understanding of the challenges and dilemmas faced by GPs.*

9. **Pharmacists with previous clinical and/or consultation experience are likely to be best suited to the role.**

WP 2: Summary

To summarise key findings of work package two presented here, the benefits to both the practice and patients are clear. Not only are the Clinical Pharmacists an invaluable source of expertise on medication they reduce GPs workload, allowing them to concentrate on patients with acute conditions. The Clinical Pharmacist also provides expert knowledge to the patient in the form of their clinics, with longer clinics allowing for more detailed medication reviews, an impartial conversation and a different perspective on their medication. There is huge scope for the expansion of the Clinical Pharmacists role, however, careful consideration of the priorities would be required. The recommendations highlight some of the key issues the CCGs, Practices and place leads may wish to consider.

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About the University of Derby

The University of Derby

The University of Derby is a modern, innovative education provider that undertakes research that makes a significant impact economically, socially, environmentally and politically both at local and national levels. Research aims to directly inform teaching and/or provide solutions for industry and the public sector.

College of Health & Social Care

The College of Health and Social Care, which is one of the seven Colleges within the University, provides education and training for a range of health and social care professions. The professionals included are adult nurses, mental health nurses, community and public health nurses, occupational therapists, radiographers, social workers, and psychotherapists and counsellors. The College is also contributing to the development of the Public Health workforce, through a Masters in Public Health programme and through a 'Supervision of Specialty Registrars in Public Health' (medical and non-medical) contract with Health Education East Midlands and the General Medical Council.

The College offers twelve M.Sc/MA programmes all of which have research components, a Masters in Public Health, a Professional Doctorate in Health and Social Care and a range of PhD programmes. All research training within the College focusses on addressing the needs of health and social care services and the professionals working in these sectors.

The Doctorate programmes are supported by an extensive research training programme which can be accessed by all students who are engaging in academic research. Within the College of Health and Social Care a range of research development events and training are also offered to support both staff and students.

Health & Social Care Research Centre

The Health and Social Care Research Centre takes a lead on the development of research within the College of Health and Social Care. It was established in 2014 in collaboration with NHS England and local Clinical Commissioning Groups in order to engage in innovative applied research which focusses on supporting and enhancing the quality of health and social care across the East Midlands and which has a positive impact on local communities and populations. An important strand of its work is to work in partnership with health and social care providers to re-engineer approaches to healthcare delivery.

The Centre offers a multi-disciplinary approach to academic and applied research within the field of health and social care with the aim of building healthy sustainable communities across the East Midlands. The disciplines that are currently represented by the Centre's core and associate staff include primary care specialists, public health, nursing, occupational therapists, radiographers, medicine, psychology and arts and health practitioners. Staff within the Centre work closely with EMAHSN and East Midlands CLAHRC, Derbyshire CCG's and local Trusts in order to ensure that our work is clinically relevant.

The Centre has three broad thematic areas of work:

1. Optimising individual health and well-being – this theme focuses on enhancing the management, care and treatment of service users.
2. Promoting healthy communities – this theme focuses on improving the health and wellbeing of local populations and communities.
3. Building and developing an effective health and social care workforce

About Southern Derbyshire Medicines Management Team

The Medicines Management team works across Southern Derbyshire and Erewash Clinical Commissioning Groups. The MMT also hosts a Derbyshire-wide Medicines Management Clinical Effectiveness Team and Derbyshire-wide Lead Antimicrobial Pharmacist.

As part of our on-going commitment to providing high quality medicines oversight and ensuring safe, effective and affordable use of medicines across our area, our medicines management team is transforming and redesigning services involving pharmacy and/or medicines. Following the successful pilot in South Derbyshire in which over 90% of patients accessing the minor ailment scheme found it to be extremely beneficial and worthwhile the scheme was rolled out to cover the entire CCG from December 2016. The scheme provides access to advice, treatment and medicines, if needed, to patients with minor ailments through a community pharmacy. Working collaboratively within the health and care system this initiative supports those with minor conditions whilst keeping GP appointments free for patients with more serious complaints. Over the six months of the pilot 213 patients attended the participating community pharmacies for consultations on a range of minor ailments and received self-care advice on their symptoms, including duration and what to expect. Some of these patients also received free medication on the scheme if it was deemed necessary by the pharmacist. 93% of these patients would have made an appointment to see their GP if this scheme had not been available resulting in valuable GP time being used for minor or common issues.

We developed a Prescribing Quality Scheme (PQS), which includes a compulsory section on investigating how pharmacists can improve on quality health outcomes related to medicine through monitoring of medicines quality indicators (PINCER). The scheme also focuses on improving patient outcomes through education and knowledge sharing on clinical areas that relate to medicine use, for example ensuring the appropriate management of patients with atrial fibrillation (AF) to reduce the risk of preventable strokes. We also worked jointly with Derbyshire University with the overall aim to explore the role(s) and benefits of the Medicines Management team in the delivery of improved clinical outcomes and reduction in avoidable healthcare costs across Southern Derbyshire. This research programme consists of three broad, interrelated work packages. Each work package is located in the regional, national and international evidence base and literature, as appropriate.

We continue to support patients in getting the best from their medicines by reducing waste, improving medicine quality, increasing efficiency and safety of the prescribing processes within primary care. The establishment of a system-wide Quality Improvement Collaborative focusing on medication safety has been enhanced by the appointment of a Specialist Medication Safety & Quality Pharmacist to carry out & support the Medication Safety Officer role as outlined in the National Patient Safety Alert “Improving medication error reporting and learning”. Prescribers in Primary care are being encouraged to report medication incidents/errors by the Medicines Management team to the CCG using the National Reporting & Learning System (NRLS) Patient Safety GP e-form. Reported medication incidents are investigated by the Specialist Medicines Safety & Quality Pharmacist, who also works closely with the CCG Primary care & Quality team for Serious Incidents that are reportable to NHS England. Medication incidents and learning are discussed with the CCG Prescribing Group & shared with the Medicines Management Team for their information or action where needed. Actions taken & learning points from Medication incidents/errors are also shared with all GP practices & Community Pharmacies across Derbyshire via the Derbyshire Medicines Management Newsletter.